

Name _____

Scientific Notation – a way to write very large or very small numbers
- written as a number between 1 and 10 multiplied by a power of 10

To change from standard form to scientific notation:

$$1 \leq \# < 10$$

To write a large number: use positive exponent

1) Move the decimal point until you have a number greater than 1 and less than 10.
5,860,000 becomes 5.86

2) Count the number of places you moved the decimal point and use that number as a power of ten.

Since the decimal must be moved 6 places to the right to get back to its original place, you multiply by 10^6 or 1,000,000. Remember...the number of zeroes in a whole number power of ten is the same as the exponent.

3) Write an expression with the decimal number (from step 1) times the power of 10 (from step 2). 5.86×10^6

Ex) $51,200,000,000 = 5.12 \times 10^{10}$

To write a small number: – use negative exponent

1) Move the decimal point until you have a number greater than 1 and less than 10.
0.0000000029 becomes 2.9

2) Count the number of places you moved the decimal point and use that number as a power of ten.

Since you will move the decimal 9 places to the left to get it in its original place, you will multiply by 10^{-9} . The exponent will always be negative if you move the decimal to the left.

3) Write an expression with the decimal number (from step 1) times the power of 10 (from step 2). 2.9×10^{-9}

Ex. $0.0000000285 = 2.85 \times 10^{-7}$